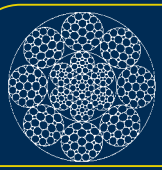
The Nemag rope pear socket and quick release link are used worldwide for very fast changing of grabs,.

The Nemag Quick Release Link and the Nemag Rope Pear Socket

For quick and safe connecting and disconnecting of any type of steel wire rope and chain



Complete overview of Nemag links and Nemag rope pear sockets for normal and compacted steel wire rope including all ordering tables.

The Nemag rope pear socket is used as end connection of steel wire ropes used at every type of grab crane.

The reliable, quick and safe coupling system by Nemag

Together, the patented Nemag quick release link and Nemag rope pear socket make up a highly efficient system that enables the quick coupling or uncoupling of steel wire ropes, chains and D-shackles. The use of this system in the bulk transhipment industry to change grabs is already wide-spread. But also in other industries where steel wire ropes have to be connected to other steel wire ropes or chains quickly and safely, these two 'smart' products are in great demand. In this brochure we will explain the straightforward, quick and effective functioning of Nemag's quick release link and rope pear socket.
Aside from that you will also find all technical data related to these products in this brochure.

Universally applicable

Together with the Nemag rope pear socket the Nemag quick release link forms an unbreakable link between steel wire ropes and/or chains that can be uncoupled by one person within a few seconds through a very straightforward manoeuvre. Both Nemag products can be supplied for any type of crane, for any make or type of grab, and for any type of rope or chain.

The Nemag quick release link and the Nemag rope pear socket are manufactured with the greatest possible precision using high-grade steel, based on the strictest quality standards. In addition to that Nemag has adopted a safety and quality program that involves periodic quality assessments and load testing. Every single quick release link and rope pear socket is checked before leaving the factory.

Nemag & the Quick Release System

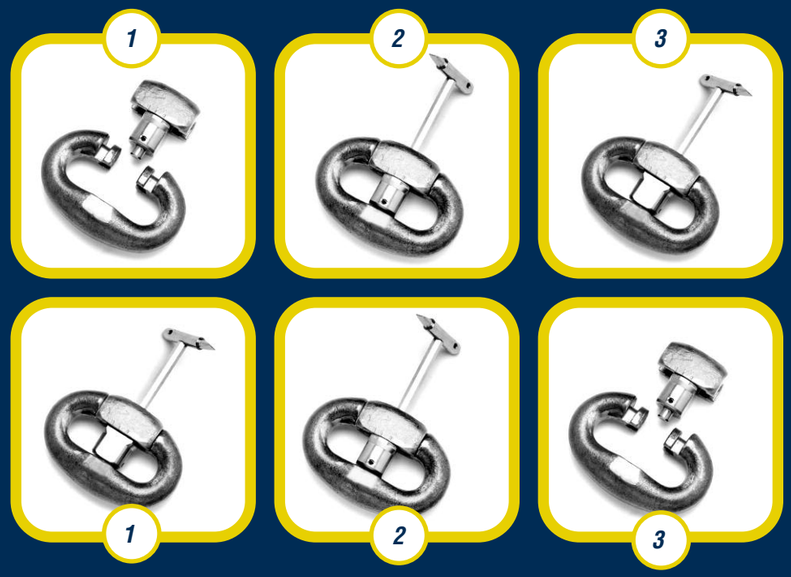
It is no surprise that Nemag invented a unique system for the quick coupling or uncoupling of ropes and chains. As a well-known designer and manufacturer of grabs, Nemag quickly found itself faced with the time-consuming nature of changing grabs.
As a result Nemag came up with the idea for the quick release link: a C-section with a perfectly fitting locking piece, which can be opened or closed in no time using a special key.

User-friendly, quick and safe

The quick release link is available in a range of sizes for grab working loads from 2,000 kg to 42,500 kg and breaking loads up to 260,000 kg. Apart from that Nemag has also developed a highly durable end connection for steel wire ropes: the Nemag rope pear socket. These rope pear sockets can be easily fitted to the steel wire rope without the need for any outside assistance. The rope pear socket gives steel wire ropes straightforward, quick and safe coupling qualities, as well as a maximum load-bearing capacity. A range of different rope pear sockets is available depending on the working load and the thickness of the rope. The rope pear socket has been designed to pass over crane cable sheaves smoothly in combination with the quick release link.

Coupling and Uncoupling within a few seconds

Coupling:
Step 1: *place the locking piece in the C-section* ***Step 2:*** *turn the key 90° to the right...* ***Step 3:*** *until you hear a click*
Uncoupling:
Step 1: *apply the key, press and...* ***Step 2:*** *turn 90° to the left* ***Step 3:*** *remove the locking piece*



Quick is: ***Coupling: 8 sec ! Uncoupling: 10 sec !***

The Nemag Quick Release Link

The link with a worldwide patent

The Nemag quick release link was originally developed to enable quick and straightforward coupling and uncoupling of grabs on cranes. But the Nemag quick release link is also being used with great success in other applications where loads frequently have to be coupled or uncoupled using steel wire ropes and/or chains.

The Nemag quick release link is made up of a C-section and a locking piece. The C-section and the separate locking piece are made of special steel. The contact surfaces of the C-section have been hardened to achieve a long life span. The sealed locking piece has strong protection against damage and dirt.

The Quick Release Link

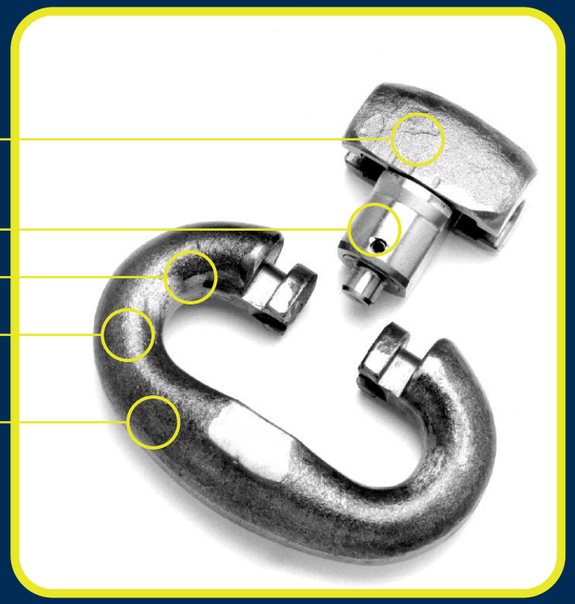
Locking piece of high-grade steel, refined to a tensile strength of 800-1000N/mm2

Locking piece

Contact surfaces hardened

The perfect range of sizes ensures interchangeability of C-sections and locking pieces

C-section of high-grade steel, refined to a tensile strength of 1000-1100 N/mm2



High capacities / special applications

Nemag is able to provide special quick release links for out-of-the ordinary applications like off-shore applications for example. As part of that we have in the past supplied special quick release links with a breaking capacity of 9000kN for a 95 mm chain cable including all required safety certificates.

Advantages of the Nemag Quick Release Link:

- *The Nemag quick release link is fitted to all Nemag grabs as standard. And is in addition also suitable for all grabs from other manufacturers.*
- *The Nemag quick release link has been balanced and perfected to become the most reliable, quickest and safest coupling method for ropes and chains.*
- *The Nemag quick release link constitutes an important contribution to the efficiency of transhipment, because the grabs can be changed in no time using the Nemag quick release link and rope pear socket. This guarantees optimal productivity of the crane (4-rope grabs for a 40 ton crane can, for example, be changed in 10 minutes by one person).*
- *The contact surfaces of the C-section have been hardened, which considerably lengthens the life span.*
- *The construction of the locking piece ensures reliable and fault-free functioning; even under the most severe circumstances.*
- *The locking pieces are interchangeable.*
- *The ingenious locking piece guarantees maximum safety because it cannot accidentally come loose.*
- *The Nemag quick release link stands out because of its great user-friendliness and extremely quick functioning.*
- *The quality and safe functioning of the Nemag quick release link is checked continuously through internal procedures.*
- *If desired it can be supplied with a 3.2 mark (for example L.R.S. or A.B.S.)*

The key

Nemag also supplies a key especially designed for the quick release link. This key has a hexagonal head that fits into the keyhole of the locking piece. The horizontal handle provides sufficient grip to be able to open or close any locking piece with one short movement. The sharp end of the handle can be used to clear dirt on the outside (of the keyhole).

The Nemag Rope Pear Socket

The rope pear socket is an end connection especially designed by Nemag for steel wire rope. Using the Nemag rope pear socket an unbreakable connection can be made, and the rope can be coupled to other ropes and chains in the best possible way; and even more so in combination with the Nemag quick release link.

The Nemag rope pear socket is cast from high-grade austenic manganese steel and generally lasts longer than the steel wire rope itself. Austenic manganese steel combines a great thoughness and a high resistance to wear.

Temperatures

Rope pear sockets can be fitted to the rope using a metallic casting mass or a 2-component casting mass. Applying metallic casting on a too high temperature can cause structural decomposition from austenitic to martensite. Martensite is a lot less flexible and as a result more brittle and not as resistant to the shocks rope pear sockets are exposed to. Decomposition from austenitic to martensite happens when rope pear sockets are heated to temperatures above approx. 300 degrees Celsius and to a greater extent at even higher temperatures. That is why it is not permitted to apply casting alloys with a melting point above 245 degrees Celsius and a casting temperature above 320 to 350 degrees Celsius. This has to be taken into account.
Make sure the temperature never rises above 350 degrees Celsius and check this using thermochrome or temperature indicators of a well-known and approved make or brand. The shape and socketing technology of the rope pear socket reduce the bending of the wire rope to a minimum. The rope pear socket is often used in combination with the quick release link, but also widely applied in other coupling combinations.

User manual

Erroneous use can result in austenitic being decomposed into martensite. The specific manual has to be consulted when casting the wire rope into the rope pear socket (the user manual can also be downloaded on www.nemag.com) and in addition to that the instructions of the manufacturers of steel wire ropes and/or casting products also have to be complied with. For further information you can also refer to the last page of this brochure.

Advantages of the Nemag Rope Pear Socket:

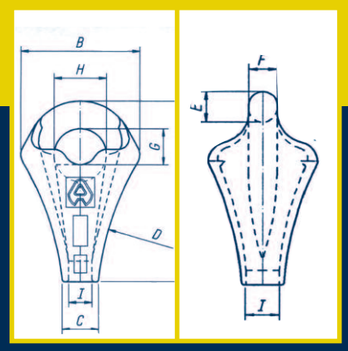
- ***The Nemag rope pear socket has been designed to, in combination with the Nemag quick release link, smoothly pass over cable sheaves designed for that purpose.***
- ***The life span of the Nemag rope pear socket generally surpasses that of the steel wire rope.***
- ***The rope pear socket can be fitted by casting with a 2-component casting mass without the need for outside assistance, and ensures an unbreakable connection.***
- ***Our range of rope pear sockets is suited to any type of steel wire rope.***
- ***There are rope pear sockets available for both standard steel wire ropes and special compacted steel wire ropes (the S-series rope pear sockets).***

The Rope Pear Socket for compacted steel wire rope (the S-series)

The new, additional series of rope pear sockets of the “S-type” was designed for special steel wire ropes. Examples of this are the 8-strand steel wire ropes (for example CASAR Turboplast or similar makes). In comparison with standard steel wire ropes in 6x36WS version, these special wire ropes combine a smaller diameter with a greater breaking load. The Nemag series of rope pear sockets designed especially for this type of steel wire rope has been developed in such a way that the breaking load of the rope pear socket is geared to these steel wire ropes. The safety factor of the rope pear socket is therefore in line with that of this type of steel wire rope. This means that the new rope pear socket offers additional safety in comparison to the existing range of rope pear sockets. The geometry of this new range of rope pear sockets has also been adjusted to create an even more favourable picture with regard to wire deflection behind the rope pear socket. This decreases steel wire rope fatigue and benefits the life span of the steel wire rope.

The most important advantages

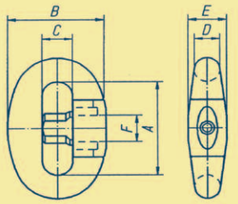
- ***especially designed for compacted steel wire rope***
- ***increased safety***
- ***less steel wire rope fatigue as a result of a better deflection angle of the steel wire rope upon passing over the cable sheave.***
- ***longer life span of the steel wire rope at the casting place***
- ***optimal, new design of the rope pear socket for improved sheave passage***



Please note!

For specific information on the casting material we refer you to your local steel wire rope supplier, or supplier of casting products. When closely following the casting instructions you will achieve a permanent connection between steel wire rope and rope pear socket.

1



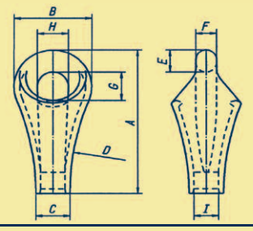
Technical specifications of Nemag Quick Release Links

Link size	Working load	Breaking load	Size in mm						Weight
			A	B	C	D	E	F	
4	3000	25000	76	76	24,5	19	30	21	0,9
5	4500	33000	84	84	27	21	33	23	1,2
6	5000	37500	92	92	29,5	23	35	25	1,5
7	7000	49000	100	100	32	25	38	28	2
8	8000	54000	108	108	34,5	27	41	31	2,5
9	9500	60000	116	116	37	29	44	34	3,1
10	12000	75000	128	128	40,5	32	48	37	4,4
11	15000	95000	140	140	44	35	53	40	5,7
12	17000	110000	152	152	47,5	38	57	43	7,2
13	21000	135000	164	164	51	41	62	46	8,7
14	26000	160000	176	173	54	44	66	50	11
15	30000	175000	188	188	58	47	71	52	13,5
17	42500	260000	222	222	68	56	84	62	23

Dimension tables are subject to change.

The working load is the recommended maximum load for grabbing operations when quick release links and rope pear sockets are passing over a special cable sheave. For other applications a safety factor in line with official international and national guidelines has to be adhered to.

2



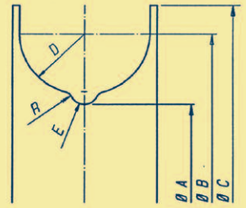
Technical specifications of Nemag Rope Pear Sockets

Pear size	Wire rope diam.	Work.load	Break.load	Size in mm									Weight
				A	B	C	D	E	F	G	H	I	
1	10-11	1500	10000	81	48	22	195	12	11,5	20	24	12	0,4
2	12-13	2000	14000	94	56	25	195	15,5	13,5	22	25	14	0,5
3	14-15	2500	17500	108	64	28	220	17,5	15,5	24	29	16	0,6
4	16-17	3000	22500	122	70	31	220	19,5	17,5	26	31	18	0,9
5	18-19	4500	27500	135	84	33	245	21	19	30	42	20	1,3
6	20-21	5000	35000	152	84	36	310	23	21	33	38	23	1,7
7	22-24	7000	42500	166	100	40	310	26	23	37	48	26	2,3
8	25-27	8000	52500	186	100	43	350	28	25	39	44	29	3,2
9	28-30	11000	70000	202	120	45	350	31	27	40	58	32	4,1
10	31-33	13000	85000	222	120	52	445	32	28,5	45	56	35	5,2
11	34-36	15000	95000	239	142	55	445	36	31,5	50	70	40	6,4
12	37-39	17000	110000	264	142	60	495	39	34,5	51	64	41	7,9
13	40-42	21000	125000	285	166	63	555	43	36,5	59	80	44	9,5
14	43-45	26000	155000	312	166	68	595	47	40	62	72	48	11,2
15	46-48	30000	180000	337	170	75	595	51	44	66	68	53	13
17	52-56	42500	240000	400	220	84	880	60	54	75	90	59	23

Dimension tables are subject to change.

The working load is the recommended maximum load for grabbing operations when quick release links and rope pear sockets are passing over a special cable sheave. For other applications a safety factor in line with official international and national guidelines has to be adhered to.

3



Sizes of Cable Sheaves

Pearnr.	Rope diam.	Link size	Size in mm					
			A	B	C	D	E	R
4	16-17	4	560	694	750	60	9	7
5	18-19	4-5-6	630	788	850	70	10	9
6	20-21	5-6-7	710	880	960	75	11	12
7	22-24	6-7-8	710	890	970	80	12	10
924	22-24	8-9-10	710	890	970	80	12	10
8	25-27	7-8-9	800	984	1060	80	14	13
1026	25-27	9-10	800	984	1060	80	14	13
9	28-30	8-9-10	900	1116	1210	95	15	13
1130	28-30	10-11-12	900	1116	1210	95	15	13
10	31-33	9-10-11	1000	1240	1360	105	17	16
1232	31-33	11-12-13	1000	1240	1360	105	17	16
11	34-36	10-11-12	1000	1240	1360	105	19	14
1336	34-36	12-13-14	1000	1240	1360	105	19	14
12	37-39	11-12-13	1200	1450	1560	110	20	12
1440	37-40	13-14-15	1200	1450	1560	110	20	12
13	40-42	12-13-14	1200	1450	1560	110	21	12
3221	42-44	15	1200	1455	1560	110	23	16
14	43-45	13-14-15	1400	1655	1760	110	23	16
15	46-48	14-15	1600	1870	1960	110	25	25
1548	46-48	14-15	1400	1655	1760	110	25	16
1648	46-48	15-17	1400	1680	1760	122	25	16
17	52-56	17	1800	2085	2200	122	29	18

Dimension tables are subject to change.

The working load is the recommended maximum load for grabbing operations when quick release links and rope pear sockets are passing over a special cable sheave. For other applications a safety factor in line with official international and national guidelines has to be adhered to.

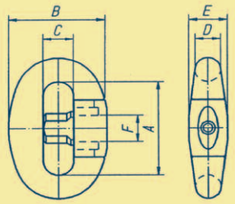
On the tables

The listed cable sheaves generally have the measurements as stated in table 3. A rope pear socket can be fitted to a quick release link of the same size, or to a link with a different size as indicated in this table 3.
The following provides an example of how you can find out the right size link and rope pear socket, and ensure additional safety.
For example: a wire rope diameter of 26 mm
Safe working load steel wire rope: 6,000 kg
According to table 2: rope pear socket no. 8
According to table 1: quick release link no.7 would be possible

Combination of the Nemag rope pear socket with Nemag quick release link

Nemag Rope Pear Socket no.	Fitting with Nemag Quick Release Link no.
1	
2	
3	4
4	4
5	4-5-6-7
6	5-6-7
7	6-7-8-9
8	7-8-9
9	8-9-10
10	9-10-11
11	10-11-12
12	11-12-13
13	12-13-14
14	13-14-15
15	14-15
17	17

4



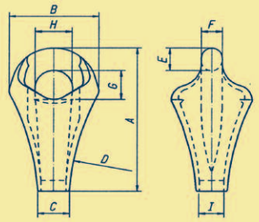
Technical specifications of Nemag Quick Release Links

Link size	Working load	Breaking load	Size in mm						Weight
			A	B	C	D	E	F	
4	3000	25000	76	76	24,5	19	30	21	0,9
5	4500	33000	84	84	27	21	33	23	1,2
6	5000	37500	92	92	29,5	23	35	25	1,5
7	7000	49000	100	100	32	25	38	28	2
8	8000	54000	108	108	34,5	27	41	31	2,5
9	9500	60000	116	116	37	29	44	34	3,1
10	12000	75000	128	128	40,5	32	48	37	4,4
11	15000	95000	140	140	44	35	53	40	5,7
12	17000	110000	152	152	47,5	38	57	43	7,2
13	21000	135000	164	164	51	41	62	46	8,7
14	26000	160000	176	173	54	44	66	50	11
15	30000	175000	188	188	58	47	71	52	13,5
17	42500	260000	222	222	68	56	84	62	23

Dimension tables are subject to change.

The working load is the recommended maximum load for grabbing operations when quick release links and rope pear sockets are passing over a special cable sheave. For other applications a safety factor in line with official international and national guidelines has to be adhered to.

5



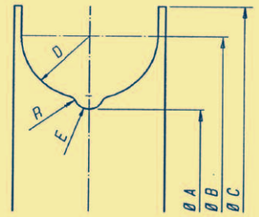
Technical specifications of Nemag Rope Pear Sockets (type S)

Pear size	Wire rope diam.	Work.load	Break.load	Size in mm									Weight
				A	B	C	D	E	F	G	H	I	
924	22-24	11000	70000	202	132	40	325	31	27	40	58	27	4
1026	25-27	13000	85000	222	143	43	375	32	28,5	46	66	30	5
1130	28-30	15000	95000	239	156	45	400	36	31,5	50	70	33	7
1232	31-33	17000	110000	249	165	52	425	39	34,5	52	72	36	8,5
1336	34-36	21000	125000	285	184	55	450	43	36,5	60	80	40	9,5
1440	37-40	26000	155000	297	192	60	475	47	40	62	80	44	12
3221	42-44	32500	189000	314	204	66	425	53	46	70	80	47	13,5
1548	46-48	30000	180000	329	192	67	575	51	44	66	80	52	12,5
1648	46-48	36000	215000	343	218	70	500	56	50	75	90	52	18

Dimension tables are subject to change.

The working load is the recommended maximum load for grabbing operations when quick release links and rope pear sockets are passing over a special cable sheave. For other applications a safety factor in line with official international and national guidelines has to be adhered to.

6



Sizes of Cable Sheaves

Pearnr.	Link nr.	Link size	Size in mm					
			A	B	C	D	E	R
924	22-24	8-9-10	710	890	960	80	12	10
1026	25-27	9-10	800	984	1060	80	14	13
1130	28-30	10-11-12	900	1116	1210	95	15	13
1232	31-33	11-12-13	1000	1240	1360	105	17	16
1336	34-36	12-13-14	1000	1240	1360	105	19	14
1440	37-40	13-14-15	1200	1450	1560	110	20	12
1542	40-42	14-15	1200	1450	1560	110	21	12
3221	42-44	15	1200	1455	1560	110	23	16
1548	46-48	14-15	1400	1655	1760	110	25	16
1648	46-48	15-17	1400	1680	1760	122	25	16

Dimension tables are subject to change.

The working load is the recommended maximum load for grabbing operations when quick release links and rope pear sockets are passing over a special cable sheave. For other applications a safety factor in line with official international and national guidelines has to be adhered to.

On the tables

The listed cable sheaves generally have the measurements as stated in table 6. A rope pear socket can be fitted to a quick release link of the same size, or to a link with a different size as indicated in this table 6.

The following provides an example of how you can find the right size link and rope pear socket, and ensure additional safety.

For example: a wire rope diameter of 26 mm

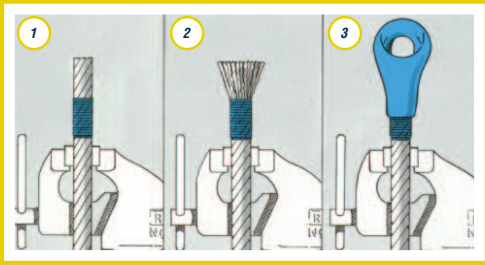
Safe working load steel wire rope: 10,000 kg

According to table 5: rope pear socket no. 924

According to table 4: quick release link no.10 would be possible

Combination of the Nemag rope pear socket type S with the Nemag quick release link

Nemag Rope Pear Socket no.	Fitting with Nemag Quick Release Link
924	8-9-10
1026	9-10-11
1130	10-11-12
1232	11-12-13
1336	11-12-13-14
1440	12-13-14-15
3221	15
1548	14-15
1648	15-17



Fitting the Rope Pear Socket to steel wire rope

The rope pear socket can be fitted to the steel wire rope in a very straightforward manner using 2-component casting resin, or by way of metallic casting. The casting instructions below are very general; please consult the user manual (www.nemag.com) and the instructions that come with the casting mass. For specific information on the casting material we refer you to your local steel wire rope supplier. When closely following the casting instructions you will achieve a permanent connection between steel wire rope and rope pear socket.

General steps for casting

1. *- Carefully tie up the wire rope at a length of at least two times the wire rope diameter, starting from a distance that equals the length of the rope pear socket cover to the casting level ridge minus 1x a wire rope diameters (fig.1)*
2. *- Untwine all strands to make the ends of the wire rope look like a broom. (fig 2).*
3. *- Clean the broom thoroughly and remove grease with a (branded) degreaser or ultrasonic cleaning agent. Maintain the broom in a downward position whilst cleaning to prevent liquids from seeping into the wire rope. Then allow the cleaned wire rope end to dry.*
4. *- Slide the rope pear socket over the broom until the untwined wire ropes almost reach the end (level ridge for casting) of the conical cover of the rope pear socket. Now vertically lock the wire rope and the rope pear socket. The wire rope under the rope pear socket has to be straight along a total length of 24 times the wire rope diameter. (fig.3)*
5. *- Close the bottom end of the rope pear socket at the end of the wire rope using a sealant to prevent casting material leakage.*
6. *- Pour the resin and/or casting liquid from above into the rope pear socket cavity as per the instructions provided by the manufacturer of the casting material.*

Maintenance

Quick release links, rope pear sockets and similar fittings have to be cleaned regularly by removing aggressive and abrasive substances. We recommend that you grease the links and pears. Greasing should at least be carried out at 8 hour intervals when the equipment is in continual use. Filing off protrusions and sharp edges caused by wear, in particular on rope pear sockets, will extend the life span. Wear on the surface of the rope pear socket or quick release link of over 15% is not permissible and makes replacement necessary. You may never harden or repair rope pear sockets and quick release links yourself, for example by welding.

Ordering

For further information you can contact Nemag's sales department by email or telephone. You can also request a list of addresses of Nemag quick release IInk and rope pear socket retailers.

WARNING

Any warranties, expressed or implied,concerning the use of rope pear sockets apply to new, unused rope pear sockets when tested in a standard testing machine under controlled conditions, in direct tension, and at a uniform rate of speed. The term "Breaking load" contains no implication of what load a rope pear socket will withstand if not properly used, or if it suffers abuse. All equipment using rope pear sockets must be properly maintained. Rope pear sockets must be properly stored, handled, used and maintained within the rules of user manual. Most importantly, rope pear sockets must be regularly inspected before and during each use. Inspections must meet local or applicable national safety regulations. Damage, abuse, overloading or improper maintenance can cause failure and accidents. If in doubt about the safe and proper use of rope pear sockets consult manufacturer.

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